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OFFICE OF THE SECRETARY

In the Matter of:

Implementation of Section 17
of the Cable Television
Consumer Protection and
Comptetion Act of 1992

Compatibility Between
Cable Systems and Consumer
Electronics Equipment

ET Docket 93-7

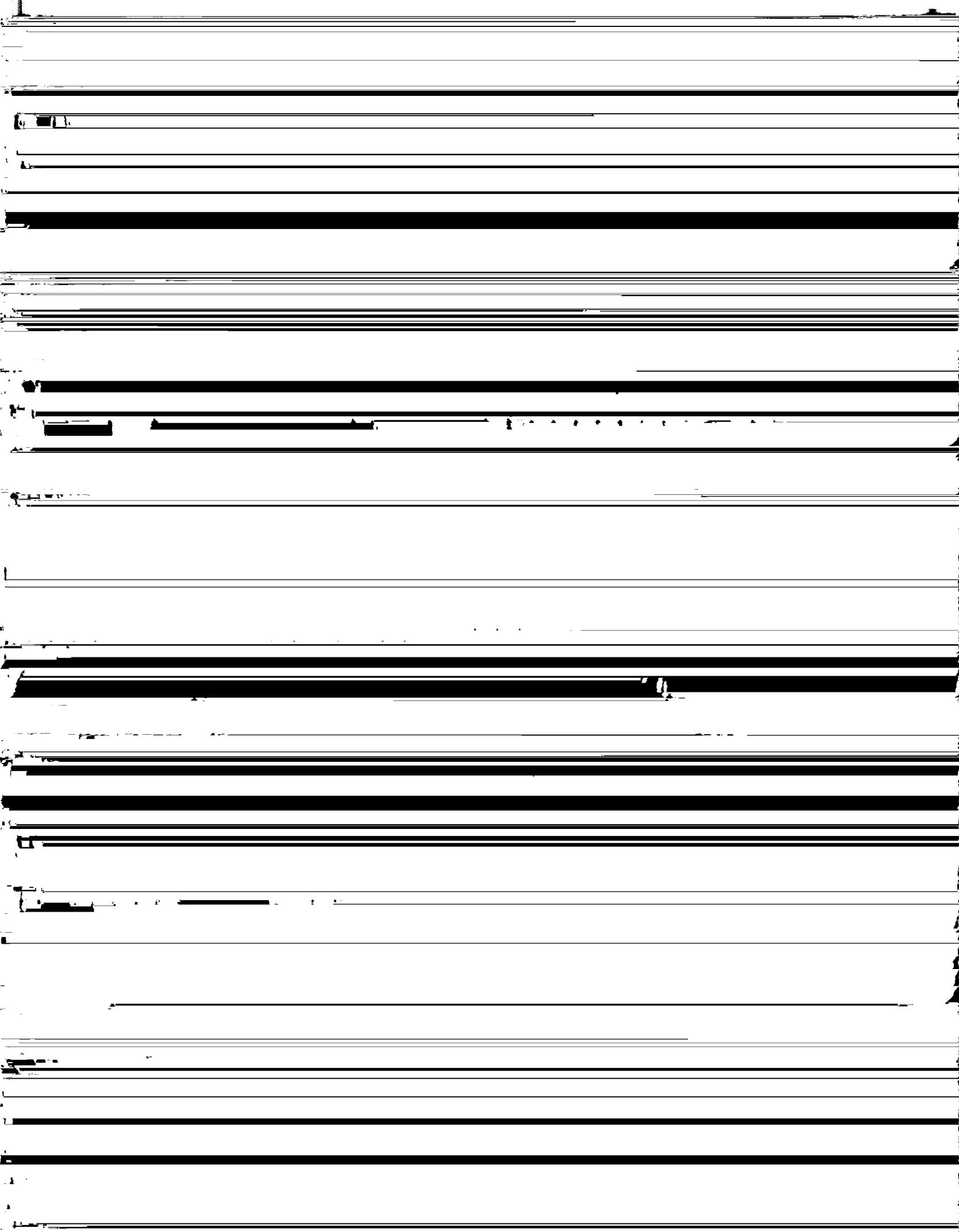
COMMENTS OF THE COMMUNITY ANTENNA
TELEVISION ASSOCIATION, INC.

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SUMMARY

The Community Antenna Television Association, Inc. ("CATA") notes that Section 17 of the Cable Act of 1992, gives the Commission great flexibility to fulfill the general Congressional mandate to achieve compatibility between cable television systems and consumer electronic equipment - television receivers and video cassette recorders.

CATA urges the Commission to fashion a regulatory program recognizing that the two industries have evolved at different rates over many years and that any state approaching complete compatibility will take many more. Cable systems will soon face competition from other broadband video distributors and cable operators must have the flexibility to choose technologies that enable their systems to best compete and provide new services to subscribers. In particular, smaller systems faced with competition from services using digitally compressed technology to deliver large numbers of channels, may also find it necessary to deliver multi-channel packages of digitally compressed programming. CATA stresses that the need to compete and institute new delivery mechanisms may result in the compatibility disconnect between cable systems and television manufacturers growing worse before a long term regulatory policy can improve the situation.

In addition, CATA reminds the Commission that other provisions of the Cable Act virtually require many systems to scramble

additional channels. For some systems, particularly smaller systems that have had no need to scramble or block more than a few channels, this will also result in a greater degree of incompatibility than presently exists.

CATA recommends the use of "by-pass" circuitry and switching boxes to minimize incompatibilities that exist for the imbedded base of "cable ready" television receivers and VCRs, and supports industry efforts to arrive at a definition of "cable compatible" receiver that will include specifications for "multi-port" circuitry, improved tuner design, modular tuners, and improved shielding.

CATA believes that for the future, the Commission must be prepared to adopt compatibility requirements that do not freeze either the cable industry or television manufacturers into existing technologies. Premature adoption of standards could cut short evolving technological developments.

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COMMENTS OF THE COMMUNITY ANTENNA TELEVISION
ASSOCIATION, INC.

1. The Community Antenna Television Association, Inc.,
("CATA"), hereby files comments in the above-captioned
proceeding. CATA is a trade association representing owners and
operators of cable television systems serving approximately 80
percent of the nation's more than 60 million cable television
subscribers. CATA files these comments on behalf of its members
who will be directly affected by the Commission's action.

INTRODUCTION

2. Section 17 of the Cable Act of 1992 requires the
Commission to investigate, report to the Congress, and adopt

1 television receivers. CATA believes the Commission should be
2 guided by the following principles: No action should be taken
3 that will inhibit cable systems from competing in the growing
4 market for video distribution services. Commission regulation
5 should not prevent, but rather follow, the establishment of new
6 technologies. Finally, the Commission must foster cooperation
7 from both the cable industry and the television and VCR
8 manufacturers if it is to find a lasting solution to the problems
9 of incompatibility.

11 SCOPE OF COMMISSION'S TASK

13 3. Throughout Section 17 the Congress has made it clear to
14 the Commission that it must address the issue of compatibility
15 through a balancing process. Assuring compatibility must be
16 consistent with the need to prevent theft of cable service. Any
17 regulations ultimately adopted by the Commission must take into
18 consideration the costs and benefits to consumers and the need of
19 cable operators to protect the integrity of the signals
20 transmitted by the cable operator. The Act not only requires the
21 Commission to address methods of signal delivery in the cable
22 industry, but also requires the Commission to specify technical
23 requirements that would define cable compatible television
24 receivers and VCRs. Unlike many of the other sections of the
25 Cable Act, Section 17 makes it clear that Congress is not at all

1 sure about the proper path to compatibility or even the extent to
2 which complete compatibility can be reached. While on the one
3 hand, the Commission is told to "assure compatibility," it is
4 also instructed to adopt regulations that "minimize" interference
5 with the special functions of television receivers and VCRs and
6 that its actions must be "consistent with the need to prevent
7 theft of cable service, so that cable subscribers will be able to
8 enjoy the full benefit of both the programming available on cable
9 systems and the functions available on their televisions and
10 video cassette recorders." Section 17 recognizes that cable

1 become compatible with receivers, that Congress has first
2 required the Commission to investigate the problem and provide it
3 with a report. This Inquiry is the first step of a process that
4 will inform both the Commission and the Congress as to what steps
5 the cable industry and television manufacturers can reasonably be
6 expected to take.

7
8 5. It is important at the outset to make clear what the Act
9 does not require. The Act does not prescribe any single form of
10 signal delivery or method of providing signal security. The
11 Commission is not expected ultimately to adopt regulations that
12 would either prohibit the use of specific devices, such as
13 converters, or proscribe any specific type of scrambling
14 technique. Significantly, there is no suggestion in the Act that
15 the Commission take steps to freeze any existing technology or
16 inhibit the development of new technologies. And although the
17 Commission will have 180 days after it submits its report to the
18 Congress to enact regulations, Congress has not required that the
19 regulations take effect within any specific time frame.

20
21 6. It appears then that unlike other sections of the Cable
22 Act that have imposed arbitrarily short deadlines for imposing
23 specific regulations, in Section 17 the Congress is giving the
24 expert agency the time and the flexibility to accomplish its task
25 sensibly and fairly. Congress has set goals and given the

1 Commission room to accomplish its job in a manner that does not
2 impose hasty or severe requirements on either the cable industry
3 or the television manufacturing community. Most significantly,
4 the Commission has here the opportunity to adopt an on-going
5 regulatory process that can take into account evolving
6 technological developments, without retarding the ability of
7 either industry to provide consumers with additional choices in
8 both the types and amount of programming provided and the manner
9 which such programming might be received.

11 THE PAST AND PRESENT

13 7. Without commenting on the validity of Congressional
14 concern for the extent to which cable delivery systems may not be
15 compatible with certain television receivers and VCRs, we
16 emphasize that, historically, neither the cable industry nor the
17 television manufacturers set out on a course to frustrate the
18 consumer. The earliest cable systems supplied a limited number
19 of channels to television receivers able to receive them by use
20 of a 75-300 Ohm transformer enabling use of the receivers'
21 antenna terminals. Cable converters were used initially to
22 overcome certain inadequacies in the ability of television sets
23 to properly receive and process cable channels. The converters'
24 output was on a single channel, which in fact rendered the
25 receivers' complete tuning capabilities unnecessary, but, for all

1 practical purposes, this effect was transparent to consumers who
2 could still use their television sets for the purpose for which
3 they were intended. Television sets improved. So did the
4 ability of cable systems to provide an increasing number of
5 channels - numbers beyond the ability of television tuners to
6 process. By the time some television manufacturers began to
7 offer sets with an increased tuning range, in theory rendering
8 converters unnecessary, cable systems were beginning to take
9 advantage of the ability to offer premium services that required
10 the security of scrambling. Logically, descrambling capability
11 was placed in the converters. As manufacturers were offering
12 VCRs, cable systems were increasing the number of premium
13 channels and found that a cost effective method of providing
14 subscribers with flexibility in their channel selections was to
15 install converters in which the descrambling of premium channels
16 while still in converters, could be controlled - addressed - from
17 the systems' headends. Throughout the technological evolution of
18 cable services on the one hand, and television receivers and VCRs
19 on the other, there was no Machiavellian intent on the part of
20 either industry to offer incompatible products. But there was
21 indeed a disconnect -- technological development cycles that
22 were not synchronous.

23
24 8. Of course not all cable systems are designed the same,
25 and not all "cable ready" televisions share the same

1 capabilities. A great number of cable systems, particularly
2 small systems, use converters only for subscribers who do not own
3 "cable ready" television sets or whose standard receivers do not
4 perform well with cable systems. These systems use combinations
5 of negative and positive traps to control the provision of a few
6 premium services to their subscribers. These systems, for all
7 practical purposes are compatible with modern television
8 receivers and VCRs and subscribers can enjoy the various
9 functions that these devices offer. Not all systems, even
10 smaller systems, however, have found trapping to be suitable.
11 Traps have inherent difficulties. They are temperature
12 sensitive, can cause adjacent channel interference, and, when
13 used in groups, can result in greater risk of signal loss and
14 signal leakage. Of course, trapping is impossible for providing
15 pay-per-view services. Thus, even though traps can result in a
16 significant degree of compatibility, their use must clearly be at
17 the discretion of the individual cable operator. Other, larger
18 systems, often offering larger numbers of channels and more
19 premium services, including pay-per-view services, must use
20 ~~addressable converters~~ It is more difficult for subscribers to

1 in their capabilities. Some of these devices offer fewer
2 channels than others and, in fact, cannot receive the full range
3 of channels supplied by some cable systems. It should be noted
4 that the first cable system to offer services over a range of 1
5 GHz is now operational in Queens, N.Y. and another is under
6 construction. There is no "cable ready" receiver capable of
7 tuning over this range. There may be other difficulties with
8 "cable ready" equipment as well. As a general rule converter
9 tuners are somewhat more costly and better than television set
10 tuners. Television receiver tuners have considerably less
11 shielding and, as a result, may introduce undesirable effects in
12 the presence of the large number of signals supplied by cable
13 systems. In addition, poorly designed tuners do not properly
14 reject adjacent signals, a particular problem if the receiver is
15 intended to be supplied with a full range of cable television
16 signals. Inadequate shielding of the television receiver may
17 also result in direct pickup interference causing off-the-air
18 signals to interfere with cable channels. Cable operators are
19 often blamed when a set otherwise deemed "cable ready" exhibits
20 these and other problems associated with poor design. The costs
21 for service calls caused by receivers that are not really "cable
22 ready" have been assumed by cable operators for years. Cable
23 operators thus have a great incentive to support production of
24 television sets and VCRs that are, in fact, "cable ready."

1 **SHORT TERM APPROACHES - THE IMBEDDED BASE**

2

3 10. In the short term, and given the life of television

4 equipment, the "short term" can be a long time, there is a narrow

5 range of solutions to the compatibility disconnect between some

6 cable systems and existing "cable ready" television equipment.

7 Obviously, nothing can be done to improve whatever inadequacies

8 may exist in the imbedded base of television receivers and VCRs.

9 Television manufacturers can, however, take steps to see that

10 problems do not get worse. If cable operators must inform their

11 subscribers (as envisioned in the Act) of possible compatibility

12 problems resulting from system architecture, so too should

13 television manufacturers have the responsibility to inform

14 purchasers of receivers that not all of the functions of these

15 devices may work on some cable systems and moreover, that

16 receiver design may be inadequate for use with some cable

17 systems. Manufacturers could also make some attempt to control

18 the hucksterism that so often accompanies the sale of television

19 receivers to insure that consumers are not misled by retail

20 outlets.

21

22 11. To the extent incompatibility problems between cable

23 systems and existing "cable ready" receivers can at least be

24 ameliorated by the installation of some remedial device, the

25 burden falls on cable systems and their subscribers. It must be

1 emphasized, however, that regardless of what steps cable systems
2 may take, a poorly designed television receiver cannot be truly
3 compatible. Cable systems cannot correct difficulties resulting
4 from inadequate shielding of internal circuitry, or inexpensive
5 tuners.

6
7 12. Many cable systems, carrying large numbers of both
8 scrambled and unscrambled signals, as well as pay-per-view
9 channels, have found it necessary to use addressable converters.
10 These systems can take several steps to achieve varying degrees
11 of compatibility with "cable ready" television receivers and
12 VCRs. One approach is to permit the non-scrambled signals to
13 travel through the converter directly to the input of the
14 receiver. This can be accomplished by use of a "by-pass"
15 converter or a "by-pass" attachment to conventional converters.
16 Scrambled signals would still have to go through the descrambling
17 circuitry in the converter and be fed to the receiver on channel

1 permit sequential taping of different channels and combinations
2 of these devices. In addition, there are various switching boxes
3 of greater or less complexity, that permit use of a VCR's
4 functions. Obviously, to the extent converter and descrambler
5 functions are duplicated, the cost of these devices increase

THE LONGER TERM

15. If the goal of compatibility is to permit "cable ready" television receivers and VCRs to use their own tuners to receive both scrambled and unscrambled channels provided to cable subscribers, then there appear to be only two solutions. One would move the converter's traditional gateway function out of the home so that subscribers would receive all the cable channels to which they were entitled "in the clear." Signals that the subscriber is not entitled to receive would be electronically jammed (a positive trap) by an interfering signal outside the home. This method of signal delivery, interdiction, has been a subject of some trial for a number of years. Interdiction is costly, requires essentially a system re-build, and has not proved to function properly with large numbers of channels. Because signals enter the home in the clear, they are

1 compatibility between cable systems and "cable ready" equipment
2 is the "multi-port" receiver. This is a television receiver with
3 a standardized interface port to which a descrambling device
4 supplied by the cable system is attached. Signals from the cable
5 system are provided directly to the television tuner. Scrambled
6 signals are then shunted through the descrambler prior to their
7 display. Use of a multi-port receiver has obvious appeal. A
8 subscriber with a multi-port receiver would not need a converter
9 for descrambling and so even scrambled signals could be received
10 by the television tuner - compatibility. Assuming a multi-port
11 receiver with proper shielding, overall signal leakage would be
12 reduced. Such a receiver would leave the tuning and display
13 functions to the television manufacturer and the provision of
14 channels and, most importantly, control of descrambling to the
15 cable operator. Although a multi-port receiver, including a
16 well-designed tuner and proper shielding, would increase the cost
17 of a television set or VCR, the ultimate cost to the consumer
18 would be significantly less than paying for a partial fix in the
19 form of a more expensive converter. Unlike interdiction, where
20 the cost of providing signal security is borne by all cable
21 subscribers, a multi-port television would, presumably be
22 purchased only by consumers who desired multi-port compatibility.

23
24 17. The Cable-Consumer Electronics Compatibility Advisory
25 Group is, at present, studying various means of solving the

1 compatibility problem. CATA is participating in this effort. We
2 believe that specifications for some kind of multi-port receiver
3 will emerge from the efforts of the Group. As the Commission is
4 aware there is already one standard for a multi-port receiver,
5 EIA/ANSI 563. With the impetus of the Cable Act, this or some
6 other standard should be adopted. Specifications for such a
7 receiver represents the best single approach to the compatibility
8 disconnect. It is CATA's position that even should the joint
9 industry group fail in its attempt to reach agreement on multi-
10 port specifications, there will be enough information generated
11 to permit the Commission on its own to define a multi-port
12 device. We believe that if multi-port receivers are built
13 (actually several multi-port receivers are on the market now),
14 steps must be taken to insure that they will not be rendered
15 obsolete in the near future. As noted above, over the years
16 there has been a disparity between the numbers of cable channels
17 that can be received on some "cable ready" sets and the number of
18 channels supplied by some systems. In general, cable systems
19 have expanded their use of the spectrum at more frequent
20 intervals than television manufacturers. CATA believes the most
21 effective way to insure that new multi-port receivers are not
22 rendered obsolete is to require modular tuners. As cable systems
23 provide more services over larger amounts of spectrum, modular
24 tuners can be unplugged and replaced with tuners that are able to
25 receive the new frequencies.

THE FUTURE

18. As the Commission has recognized, a potential revolution in the provision of cable services may be underway. Compressed digital transmissions promise huge new channel capacities and the ability to experiment with new services. Many in the cable industry are confident that digital compression is an inevitability. Digitally compressed signals cannot be received by the present generation of receivers. There must be an interface between the system and the television set or VCR. It will be the venerable converter now containing in addition to tuning and descrambling functions, decompression circuitry.

19. If delivery of digitally compressed cable service becomes prevalent - and, at this point, it is simply too early to tell, the cable industry, television receiver manufacturers and the Commission will have to be prepared to re-address the issue of compatibility. Although the basic architecture of multi-port will support digital compression, if an industry standard emerges (and it probably will), it will not be for a number of years. No action should be taken to hasten the process or to lock the industry into a standard pre-maturely. Nevertheless, we should all be positioned to act as soon as a standard emerges. Standing industry committees with Commission support will be able to

1 address digital compression when the time comes.

2
3 20. The use of digital compression to enable the provision
4 of more channels and services may increase as cable systems find
5 it necessary to compete with telephone companies and satellite
6 services using similar technologies. The Commission as well as
7 the Congress, has encouraged these competing systems which, of
8 course, are also incompatible with "cable ready" devices. In
9 particular, smaller cable systems may find that the only
10 effective way to compete with these new services is by using
11 digital compression to offer more channels. As a result of this
12 competition, the public may be better served, but the
13 compatibility problem may grow worse. On the other hand, to
14 prevent the cable industry, and others as well, from continuing
15 to take advantage of new technology, flies in the face of decades
16 of Commission philosophy and is simply not a realistic
17 alternative.

18 19 INDUSTRY TRENDS

20
21 21. Events are conspiring to make the compatibility problem
22 worse, not better. As we have noted, until digital compression
23 standards can be arrived at, there will be a temporary increase
24 in compatibility problems. The Cable Act itself, by virtually
25 forcing systems to re-tier services to cope with the eventuality

1 of rate regulation, and to scramble many more channels as side
2 effect of complying with the buy-through provisions, will be
3 responsible for many systems turning to addressable converters.
4 Indeed, the Act envisions giving non-addressable systems up to
5 ten years to comply with the buy-through provisions. Assuming
6 always that the left hand knows what the right is doing, we must
7 assume that Congress understands that there are no quick answers
8 to achieving compatibility.

9
10 **OTHER MATTERS**
11

12 22. Sections 17 instructs the Commission to require cable
13 operators to "promote the commercial availability, from cable
14 operators and retail vendors that are not affiliated with cable
15 systems, of converter boxes and of remote control devices
16 compatible with converter boxes." Cable operators must notify
17 subscribers of the option of buying a remote control device from
18 any source, and to inform subscribers of the types of remote
19 units compatible with the system's converter box.
20

21 23. As the Commission is aware there is already a thriving
22 market for both converters and remote control devices suitable
23 for use with cable systems. The Commission has established
24 technical standards and equipment authorization procedures for
25 converters. It is important, however, to distinguish converters

1 and descramblers. Converters sold through retail outlets to the
2 public do not contain descrambling circuitry. Indeed, the sale
3 of such "pirate" decoders is illegal. It was not the intent of
4 the Congress to promote the sale of descrambling devices.
5

6 24. It is also important to note that although "plain
7 vanilla" converters are widely available to consumers the cable
8 industry like other industries is taking advantage of the
9 inexpensive availability of computing power by offering
10 subscribers the option of paying for converters that present
11 program menus, select programs by a point and shoot method and
12 even enable the subscriber to obtain an on-screen read-out of his
13 bill. The more sophisticated these devices become, the less
14 likely they will appear for sale in the marketplace, at least for
15 a long time. We do not believe, however, that the Cable Act
16 intends the Commission to stifle the introduction of such new
17 technology or other "user friendly" services.
18

19 CONCLUSION

20

21 25. CATA believes that the Congress has given the
22 Commission both a responsibility and an opportunity. The
23 Commission must begin a process that will result in a greater
24 amount, if not eventual, complete compatibility between cable
25 television systems and consumer electronic equipment.

Significantly, the Commission has clearly been given the time and the flexibility to begin this process without doing irreparable damage to either industry. This Inquiry will provide the Commission with much needed information. The Commission's subsequent report to the Congress must perform an educational function as well. It is clear from the balancing of interests in Section 17 of the Cable Act that the Congress has offered only a goal and has left to the Commission the hard job not only of reaching that goal, but explaining the extent to which the goal may not be reached. We note that it will be difficult for the Commission to reach even tentative conclusions in this proceeding until it has resolved finally various of the other proceedings resulting from the Cable Act. In the meantime, CATA and its members look forward to providing the Commission with whatever assistance may be necessary to continue its investigations.